ORIGINAL

Horsley Witten Group

Sustainable Environmental Solutions

90 Route 6A • Sandwich, MA • 02563
Phone - 508-833-6600 • Fax - 508-833-3150 • *www.horsleywitten.com*
Boston • Providence

Town of Sudbury

Engineering Services

Sudbury Town Center

Base Map Survey
Concord Rd./Old Sudbury Rd./Hudson Rd.

March 27, 2008

Submitted to:
Ms. Jody Kablack
Director of Planning and Community Development
Planning and Community Development Office
278 Old Sudbury Rd
Sudbury, MA 01776

Submitted by:
Horsley Witten Group, Inc.

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90 Route 6A • Sandwich, MA • 02563
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March 25, 2008

VIA FEDERAL EXPRESS

Ms. Jody Kablack
Director of Planning and Community Development
278 Old Sudbury Road
Sudbury, MA 01776

Re: Engineering Services
Sudbury Town Center

Dear Ms. Kablack:

Horsley Witten Group, Inc. (HW) is pleased to submit this proposal and fee estimate for base map surveying of Sudbury center.

HW is a full service engineering firm with its main offices located in Sandwich, Massachusetts. Over the past few years HW has completed many types of land surveys for a wide variety of projects and clients. Topographic surveys for planning and engineering design, Land Court Surveys, ALTA Land Title, and Land Court Surveys are some of the services HW provides on a regular basis.

HW has two registered professional land surveyors on staff, each having a long list of current and completed projects throughout the State of Massachusetts. I would like to point out one particular project which I completed for the Town of Stoughton. As part of a revitalization project a survey of similar scope and detail was needed for planning and engineering purposes. Stoughton has 11 roads, including three state highways that converge into its center. I conducted all research, directed field work, coordinated with utilities, municipal and county officials, completed all CAD drafting and plans and specifications.

This submittal includes our proposed scope of work and fee, detailed information on our staff qualifications and relevant work experience.

Thank you for the opportunity to submit this proposal. If you have questions regarding this proposal, please do not hesitate to contact me at (508) 833-6600.

Sincerely,

HORSLEY WITTEN GROUP, INC.

Dan MacKenzie, PLS
Project Surveyor – Engineering
Enclosure

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Table of Contents

1.0 Introduction

Horsley Witten Group, Inc. (HW) is a full-service environmental science and engineering firm with offices located in Sandwich and Newburyport, Massachusetts and Providence, Rhode Island. HW is unique in that we have a balance of public and private client base, and have gained a better understanding of the design and permitting from both sides. The firm was incorporated in 1988 and consists of a professional staff of over thirty five engineers, surveyors, hydrogeologists, hydrologists, wetlands scientists, marine scientists, geologists, computer modelers, land use planners, environmental analysts, licensed site professionals, and supporting personnel. HW specializes in providing consulting services in sustainable development techniques, engineering site design, professional land surveying, construction management, wetland delineation, coastal and watershed protection, hydrology, hydrogeology, land use regulation-planning and zoning, and technical information transfer and training. Our clients include government agencies at the federal, state, tribal, regional, county, and municipal levels, as well as private sector organizations, non-profit organizations, and individuals.

2.0 Relevant Projects

HW has a demonstrated ability to complete surveys for planning and engineering design. HW has performed topographic/property line surveys for permitting and development feasibility. Each type of survey has its own distinct standards and level of detail. The following are examples of some of our recent experience, full copies of Project Descriptions are also provided as an attachment.

- Town of Plymouth, Billington Sea Road Plymouth, MA. HW completed a topographical survey within the right of way for over 3,200 feet of roadway which included Billington Sea Road and three other contributing roads. Survey was necessary for corrective drainage design. Design sought to reduce sediment and pollutants entering Billington Sea.

- R. W. Beck, Cape Cod Community College, Barnstable, MA. HW performed a complete property line survey and topographical survey for an area of 14 acres on the college campus. HW was responsible for locating utilities, buildings, land features and improvements to facilitate the placement and design of a wind turbine. Survey referenced Massachusetts State Plane and NGVD datums.

- EA Fish, Asher's Path, Mashpee, MA. HW performed all survey work for this over-55 housing development. HW completed topographical and property line for design of the facility, an ALTA survey for title insurance prior to construction. HW provided survey layout of proposed building, utilities, etc. during construction. An as-built plan of the finished building with all improvements was submitted for final review.

3.0 Personnel Qualifications

The following is a short description of the qualifications of several of our personnel that would play key roles for the completion of this project. Complete resumes are also provided as attachments.

Richard A. Claytor, Jr., P.E., Principal-In-Charge, as director of engineering at HW, Rich will oversee all aspects of the project and review plan work. He will write the review and update of existing conditions.

Daniel W. MacKenzie, PLS, will direct all surveying tasks from research to final plan delivery.

Michael S. Ladue, PLS, will assist with research, field work and property line determinations.

Justin Lamoureux, P.E., will assist in the field and the office. He has extensive experience with operations and plan production.

Joe Henderson, P.E. will assist with the collection of research materials and will fill in on the field work and plan production when necessary.

4.0 Scope of Work

Task 1: Survey

HW will provide a survey of existing conditions as required to accomplish the design and documentation of the improvements of this project as described in this Request for Proposal. The survey shall be prepared to Massachusetts Highway Department standards. The survey shall reference the Massachusetts Plane Coordinate System, elevations shall be based on North American Datum of 1988. Topographic survey at two foot contour intervals is required in all areas. The approximate limits of the survey are indicated on Attachment A: Survey Limits. The survey will consist of a greater level of detail within the area where roadway, walkway, paving, drainage and landscape improvements are anticipated and to provide information regarding the adjacent conditions. This area is indicated as Area "A". Adjacent areas (Areas "C" and "D") shall be surveyed to indicate the location of major features (buildings, large trees, stone walls, walkways, light posts, edge of pavement and property lines). The Town parking lots and driveways (Area "B") shall be surveyed to indicate the extent of the existing pavement areas and adjacent building faces, walls, fences, light posts and the like. The following scope directly mirrors the requirements of the Request for Proposals (RFP).

Within Area "A", the survey shall meet the following standards:

- The entire area to building face shall be surveyed.
- Indicate location of all pavement markings including crosswalk markings, parking spaces, and stop bar locations. Otherwise the traveled street surface need not be surveyed.
- Street rights-of-way and property lines shall be shown from records. Individual lot Lines extending back from the street right of way shall be shown. Those areas under the ownership of the Town of Sudbury shall be indicated.
- All easements shall be shown from records, located, and labeled within the survey area. The faces of the buildings along all streets in the project area shall be located, including entry alcoves and porches. Sill elevations of these building doorways shall be shown. Street numbers shall identify the buildings.
- Utilities that extend under or over the project area or have structures showing on the surface shall be shown and identified. Hydrants, utility poles, manholes, catch basins, gate valves, gas valves, and all surface appurtenances shall be shown.
- Locate all permanent signs, signal standards, or posts.

- Provide all spot elevations to .05 feet.

- Spot elevations at 25' intervals shall be shown at the edge of all roadway pavement. Spot elevations should also be shown at crosswalks, where paths meet driveways or roadways, and at intervals along paved paths and sidewalks. Show finish floor elevation, where pavement meets the bottom of entry steps and at corners of structures. Spot elevations should be shown at top of curb and bottom of curb opposite these same locations at building edges to control drainage.

- In open areas, provide contour elevations at 0.5 vertical intervals.

- Show all curb ramps with spot elevations.

- Manhole, catch basin, drain inlet, hand hole and gate valve rim elevations and elevations at all surface appurtenances shall be shown. Invert elevations, pipe diameters, and materials shall be shown for manholes and catch basins.

- All trees and shrubs, walls, driveways, walks, site furniture, fences, railings or other features likely to be disturbed by construction on public property or private property shall be shown.

- All trees greater than 6" dbh within 25' of the pavement edge, indicating species and diameter.

- All trees on the Town Common, indicating species and diameter.

- Identify all surface materials and lines of paving transition (ex: concrete to asphalt).

- Identify all spot elevation and graphic location of electrical boxes.

- Indicate the following:
  - Names of record owners for abutting parcels;
  - Assessors reference: map, parcel and lot number; and
  - Boundary, right-of-way, and easement lines with bearing and distance for each line segment.

Task 2: Review and Update of Existing Conditions

HW shall undertake a review of the existing studies, reports, plans, and other documentation of the project area provided by the Town. HW shall undertake field visits and a photographic inventory as required to familiarize themselves with existing conditions for the purposes of the services. HW shall provide a

memorandum listing additional information that may be required in order to advance the design, indicating the scope and level of detail required. This memorandum will include any scheduling implications relative to the performance of services in a timely manner, and estimates of costs if the consultant proposes to provide the requested information.

5.0 Compensation/Terms and Conditions

HW can complete the above scope of work for a fee of: **$12,970.00**

See Appendix A for breakdown of professional services.

6.0 Assumptions/Limitations

When the plan for review is being drafted it may come to light that more research or more time in the field is necessary to determine property lines conclusively. Some reasons for additional work maybe the inaccuracies of deeds, the lack of adequate monumentation in the field, or the need to extend the survey beyond that which was initially required. It is important to note that the nature of property line/ boundary retracement surveying requires reliance on the work of prior others (surveyors, lawyers, scriveners etc.). Any errors, omissions or inaccuracies of those may not be revealed until the research of recorded documents has been compiled. Per *250 CMR 6.00 Procedural and Technical Standards for the Practice of Land Surveying in Massachusetts,* the survey must include not only the lot to be surveyed but also all abutting lots. If an insufficient number of boundary markers are found within this survey locus the area of survey may need to be extended. If further research and field investigation becomes necessary to certify boundaries, client will be contacted for a re-evaluation.

7.0 Additional Services As Needed

Task 1: Installing Permanent Monuments

If the Town requests the installation of permanent monuments, HW can provide this service at a fee of $200.00 per monument.

Task 2: Meetings

The consultant shall participate in the following meetings, as needed.

- Coordination meetings with Town representatives;
- Meetings with the Sudbury Center Improvement Advisory Committee;
- Stake right-of-way field verification with Sudbury Center Improvement Advisory Committee; and
- Completion of any tasks outside of this Scope of Services will be billed at an hourly rate per the rates contained within this proposal.

8.0 Preliminary Deliverables

HW will provide one draft plan of survey on paper for client's review and comment.

9.0 Final Deliverables

One set of mylars and one electronic file on CD in AutoCADD 2000 format of the base map survey shall be submitted to: Jody Kablack, Director of Planning and Community Development, 278 Old Sudbury Rd, Sudbury, MA 01776.

The existing conditions survey shall be prepared at 1" = 20' or 1 " = 40', with roadway profiles at 1 "=4' vertical scale by qualified personnel (Registered Land Surveyor) n 24" x 36" sheets and on disk in AutoCAD 2000 format. The survey shall be prepared to Massachusetts Highway Department standards.

HORSLEY WITTEN GROUP – STANDARD HOURLY RATES - 2008

The following hourly rates for Horsley Witten Group personnel shall apply:
These rates will remain in effect through January 1, 2009, after which time HW may adjust hourly rates.

Title/Personnel	2008 Rate
• Principal *Horsley, Nelson, Claytor*	$160/hr
• Professional Land Surveyor *Ladue*	$150/hr
• Associate Principal *Longo, Noble*	$125/hr
• Senior Project Manager *Lee, Price, Kelly*	$110/hr
• Project Manager/Planner *Ball, Baker, Cracknell*	$90/hr
• Senior Land Surveyor *Ladue, MacKenzie*	$80/hr
• Project Engineer *Lamoureux, Wong, West, Kuchar*	$80/hr
• Project Scientist *Conroy, Grataloup, Hedman*	$75/hr
• Engineer *Henderson, Kittila*	$70/hr
• Environmental Planner *McLean, Resnick*	$65/hr
• Senior Graphics *King*	$70/hr
• Graphics *Snider*	$55/hr
• Environmental/CAD Technician *Aboltin, Cabral, Crouch-Smith, Seddon*	$55/hr
• Intern	$45/hr
• Administrative Assistant *Amory, Bourne, Kohl, Orciuch*	$45/hr

Other Direct Costs (ODC)

The following rates shall apply to project-related expenses:

o Mileage	$0.50/mile
o Facsimile	$1.00/page
o B&W Copies 8 ½ x 11	$0.20/page
o B&W Copies 11 x 17	$0.50/page
o Color Copies 8 ½ x 11	$1.00 page
o Color Copies 11 x 17	$1.50 page
o Telephone	$0.50/minute
o Plotter Prints	$1.50/sq. ft.
o Mylar Plotter Prints	$2.50/sq. ft.
o Subcontractor Fees	Cost + 15% Mark up

The client shall be billed for disposable field supplies and/or special equipment if applicable.
Other direct expenses incurred will be billed at cost.

RICHARD A. CLAYTOR, JR., P.E.
Principal - Engineering and Planning

Academic Background

Bachelor of Science, 1983
Union College, Schenectady, NY
Civil Engineering Concentration in Hydrology, Hydraulics, Water Resources, and Geotechnical Engineering

Award
EPA/MIT Stormwater Design Competition

Professional Certification and Affiliation

Professional Engineer Massachusetts, and Maryland

Massachusetts Certified Soil Evaluator

Member: American Society of Civil Engineers

Member: Town of Sandwich, Massachusetts Planning Board, May 2007 to Present

INTRODUCTION

Rich Claytor has more than 24 years of practical experience in civil and water resource engineering planning and design, construction administration, and watershed research, education, and training. He has more than 20 years of experience in a supervisory role, managing a staff of up to 20 individuals. Mr. Claytor has specific expertise in the following areas: civil site engineering, watershed planning, training and education; stormwater management practice design and project management; water resource permitting and research; water supply and wastewater conveyance design; land use planning; storm drainage, erosion/sediment control, and roadway design; and construction administration. He has authored a variety of publications on stormwater design and implementation, presented in more than 100 training workshops and conferences, and designed stormwater management systems for more than 100 major ecosystem restoration projects.

REPRESENTATIVE PROJECTS

- Main Street Village, Mashpee, Massachusetts: Mr. Claytor was the Project Manager to this "smart growth" mixed use affordable housing project on Cape Cod. The project incorporates 24 housing units from single bedroom condominiums to single family housing with nearly 10,000 square feet of retail space on a 12 acre parcel. Advanced wastewater treatment is provided by an innovative denitrification cluster system; stormwater management is provided by a series of bioretention facilities. The project is within walking distance to Mashpee's town center.

- Barnstable Municipal Airport: Mr. Claytor was the lead engineer for Horsley Witten Group's design and permitting of a private aircraft hanger and services facility through the Town of Barnstable and the Cape Cod Commission (CCC). The project employed innovative stormwater management and site design features that allowed CCC to issue an exemption from the Development of Regional Impact (DRI) review process.

- Canal Bluffs: Mr. Claytor is the Principal Engineer for the development of this affordable housing project in Bourne, Massachusetts, consisting of 137 housing units of mixed density and architectural style. The project incorporates innovative site design and stormwater management features, commonly referred to as "low impact development" strategies and received a positive response from the Cape Cod Commission as "a model for future developments."

- Brackett Landing Mixed Use Development: Mr. Claytor is the Principal in Charge for the planning, design and permitting of this small-scale traditional neighborhood design (TND) project in the

REPRESENTATIVE PROJECTS (continued)

Town of Eastham, Massachusetts. The project incorporates a mix of commercial and residential lands uses, a village common, and a pedestrian-friendly streetscape within the context of "low impact development" stormwater management and advanced nitrogen removing wastewater management. Permits were secured though the Town of Eastham, and the Massachusetts Department of Environmental Protection.

- Rhode Island Salt Ponds Watershed Plan: Mr. Claytor is the Project Manager for the development of a watershed management plan for the two of Rhode Island's coastal salt ponds. The project involves identification and preliminary design of stormwater, wastewater, and groundwater management strategies and treatment systems, as well as identification of local regulatory and other program elements to control nitrogen and bacteria loading to the ponds. The project is being viewed as a pilot for Rhode Island's Total Maximum Daily Load (TMDL) program.

- Massachusetts Wetland Restoration Program: Mr. Claytor is the Principal-in-Charge for this master services agreement for the assessment, design, and implementation of wetland restoration projects in the Commonwealth of Massachusetts. Over a two year period, Mr. Claytor has supervised the successful completion of six separate wetland restoration projects including feasibility studies, hydrologic investigations, and land uses analyses to help foster the restoration of more than 200 acres of coastal wetland resource areas.

- Stormwater Management Plan for City of Attleboro DPW Highway Yard: Mr. Claytor managed the development of this stormwater management plan that included conducting stormwater educational workshops for city employees, evaluating local applicable regulations and current site conditions, developing conceptual and final designs of structural stormwater control measures, developing a pollution prevention plan, and providing construction administration services. The City of Attleboro received a 319 Nonpoint Source Pollution Control grant from the State of Massachusetts to implement the design recommendations.

- Route 120 Highway Improvements Project, Stormwater Management Implementation: Mr. Claytor is currently the project manager and lead designer for this significant project to implement state-of-the art stormwater management measures for protection of the Kensico Reservoir in Westchester County, New York. The Kensico is the keystone reservoir in New York City's drinking water supply system. The project involves designing and implementing drainage improvements and stormwater management quantity and quality control measures, including spill prevention for 15 separate subwatersheds within the four mile highway improvement project.

REPRESENTATIVE PROJECTS (continued)

Mr. Claytor acts as the principal stormwater management design engineer responsible for site assessments to determine appropriate and feasible facility locations, hydrologic and hydraulic computations, development of conceptual designs, development of design details, permit processing and primary spokespersion for a technical advisory committee that is overseeing the project design stage.

- Vermont Agency of Natural Resources, Statewide Stormwater Management Manual: Mr. Claytor was the project manager for this 18-month effort to craft a stormwater management design manual for the State of Vermont. The manual presents a new approach in stormwater management that relies on both structural and non-structural management measures to protect aquatic resources from impacts of urban stormwater runoff. The project involved a criteria develop phase to research and define specific design criteria for the regulated community, followed by a document development phase, and, finally, an implementation phase where public review and comment were solicited. The project was performed in a fast-track time frame under a mandate from the Vermont Legislature.

PROFESSIONAL EXPERIENCE

Horsley Witten Group, Inc., Sandwich, Massachusetts, 2001 to Present
Principal – Engineering and Planning

Directs the company's engineering and planning activities. This includes the overall management of smart growth projects, development of model bylaws, planning guidance manuals, engineering design for drainage, stormwater management, and wastewater systems. Representative projects include:

- Expert witness for the evaluation of flooding and stormwater management impacts for the Powdermill Square project site along the Shawsheen River in Andover, MA.
- Principal-in-Charge for all private-owner "Smart Growth projects consisting of sustainable development practices for state of the art stormwater management, wastewater treatment, conservation of natural areas, and groundwater resource protection.
- Project Manager for the development of model stormwater management and stormwater utilities for the State of Maine office of State Planning.
- Project Manager for the development of total maximum daily load (TMDL) assessments for five separate watersheds in Puerto Rico and the US Virgin Islands under contract for the US EPA.

PROFESSIONAL EXPERIENCE (continued)

Center for Watershed Protection, Ellicott City, Maryland, 1994 to 2001
Principal Engineer

Responsible for project management for projects related to: preparing training and guidance documents for watershed restoration, guidance manuals on watershed planning, design manuals for various stormwater treatment practices and writing and reviewing technical articles. Additional representative projects include:

- Project Technical Lead for the assessment of New York State's stormwater management program within the Croton Reservoir system of New York City's drinking water supply system.
- Project Manager for the development of the Vermont Stormwater Management Manual, a comprehensive stormwater management design manual for the State of Vermont.
- Consultant to New York City Department of Environmental Protection for drinking water source protection program, providing conceptual designs, permitting and project management for implementation of stormwater practices in the Kensico Reservoir Watershed in Westchester County, New York.
- Co-author for the "Design of Stormwater Filter Systems," a design manual for small-scale stormwater management practices.

Loiederman Associates, Inc., Frederick, Maryland, 1985 to 1994
Vice President and General Manager

General Manager of all facets of branch office operations. Manager of Environmental Services Division for all offices of Loiederman Associates, Inc. Principal-in-charge for all wetland delineations, wetland restoration and mitigation planning, federal and state permit processing, and stormwater management and stream restoration planning and design. Representative projects include:

- Design and management of wetland mitigation for Washington's Metro Rail, Greenbelt Station and Maintenance Yard.
- Lead designer for E. Randolph Road project, including drainage and stormwater management implementation for a seven-mile project through densely populated Montgomery County, MD.
- Project Manager for over ten major water resource restoration projects for Prince George's County, Maryland.

Greenhorne and O'Mara, Inc, Rockville, Maryland, 1983 to 1985
Design Engineer

Responsible for complete design and drafting supervision on erosion and sediment control plans, storm drainage systems, horizontal and vertical road alignment plans and stormwater management plans.

PUBLICATIONS AND SELECTED REPORTS

Claytor, R. 2002. Overview of BMP Effectiveness and the Center for Watershed Protection's National Pollutant Removal Performance Database. in conference proceedings of the 2002 National TMDL Science and Policy Conference, Phoenix, AZ, Nov. 13-16-2002. Water Environment Federation, Alexandria, VA.

Brown, E. W., and R. Claytor. 2000. Watts Branch watershed study, City of Rockville, Maryland.

Claytor, R. 1998. An eight-step approach to implementing stormwater retrofitting, in conference proceedings of the National Conference on Retrofit Opportunities for Water Resource Protection in Urban Environments. Chicago, Illinois, February 9-12, 1998.

Schueler, T.R., and R. Claytor. 1997. Draft Maryland stormwater design manual. Maryland Department of the Environment. Baltimore, Maryland.

Claytor, R., and T. Schueler. 1996. Design of stormwater filtering systems. Center for Watershed Protection, Silver Spring, MD. Prepared for Chesapeake Research Consortium, 202 pp.

Claytor, R. and W. Brown. 1996. Environmental indicators to assess the effectiveness of municipal and industrial stormwater control programs, Center for Watershed Protection, Silver Spring, Maryland. Prepared for EPA Office of Wastewater Management.

Claytor, R. 1995. Assessing the potential for urban watershed restoration, Watershed Protection Techniques, Vol 1, No. 4. p166-172.

11/07

DANIEL W. MACKENZIE, PLS
Professional Land Surveyor – Engineering

Academic Background

Bachelor of Arts, 1988
Stonehill College

Land Survey Classes

University of Wyoming

Mathematics & Computations including Route Surveying and Advanced Surveying

Wentworth Institute of Technology

Legal Aspects of Land Surveying

Professional Certification and Affiliations

Registered Professional Land Surveyor Registration # 47187

Member of MALSCE (Massachusetts Association of Land Surveyors and Civil Engineers)

INTRODUCTION

Dan MacKenzie has more than 12 years of professional experience in land surveying, engineering and GIS. Dan's extensive knowledge of surveying and mapping allow him to compliment any type of project whether it planning, engineering design, permitting or construction. Having worked in both the public and private sectors, Dan has directed the completion of boundary surveys, subdivisions, Land Court, ALTA title insurance and easement plans, plans for permitting, topographic surveying for engineering design and plan review. Dan is also well versed with AutoCAD, ArcMap, GPS Pathfinder, TDS Foresight to name a few surveying, mapping and GIS software packages.

REPRESENTATIVE PROJECTS

Existing Conditions Surveys and Plans

- Stoughton Center Traffic Improvement. Responsible for producing existing conditions plan for heavily congested downtown area. Plan area covered the convergence of all 11 roadways into the center of Stoughton. To accurately depict buildings, roadways, sidewalks, 1 foot contours and utilities, Dan directed GPS control survey, conducted field survey, coordinated with all public utility companies and the public works department and drafted plan into format for design engineer.

Construction Layout

- Main Street Village, Mashpee, MA. Main Street Village was a mixed-use development designed by The Horsley Witten Group (HW) consisting of single-family homes, multi-family units, and retail stores. Dan provided on-call layout services for the developer, SM Realty Trust throughout construction. Stakeout of roadways, buildings, utilities, stormwater and wastewater facilities allowed construction crews to efficiently coordinate the project. Survey services also included the completion of As-built plans. This allowed engineers to evaluate stages of construction and provide town authorities the ability to inspect and approve work without causing costly delays.

Large Scale Photo Control Projects

- Scraggy Neck, Bourne MA. In an effort to provide a municipal water supply an accurate map of the entire island was necessary prior to design and construction. Dan coordinated the placement of photo control for an aerial company providing topographic mapping, researched road layout, conducted right of way surveys and through a combined use of GPS and total station located all coastal and wetland resources areas.

GIS Mapping

- Town of Stoughton. Using existing GIS layers, CAD files and scanned images of As-Built drawings, Mr. MacKenzie developed sewer and water supply layers for the Town of Stoughton. He was also responsible for populating layers with attribute data for use by residents, public works and design professionals.

ALTA Title Insurance Plans

- E A Fish, Boston, MA. HW was retained to perform land surveys for four separate parcels located throughout the city that EA Fish was interested in acquiring. EA Fish also had an aggressive deadline which did not allow for the standard amount of time to deliver these types of surveys. In order to be of use to potential buyers, sellers, attorneys and other real estate professionals these plans must adhere to the stringent national standards put forth by ALTA/ACSM. HW was successful in performing the research, field work and drafting necessary to a timely delivery.

PROFESSIONAL EXPERIENCE

Horsley Witten Group, Sandwich, Massachusetts, September 2004 - Present
Professional Land Surveyor - Engineering

Town of Stoughton Engineering Department, Stoughton, Massachusetts
October 2001 - September 2004

GAF Engineering Inc., Marion-Wareham, Massachusetts
August 2000-October 2001

Alpha Land Surveying & Engineering Associates, Middleboro, Massachusetts
August 1994-August 2000

MICHAEL S. LADUE
Professional Land Surveyor

Academic Background

Bachelor of Science, 1983
Union College, Schenectady, NY

Land Survey Classes Northeastern University, Boston, MA

INTRODUCTION

During Mr. Ladue's 23-year career, he has worked in all facets of land surveying and property development. Since licensure, he has conducted and overseen surveys for subdivisions, municipal improvements, and permitting and design. He has been associated with Horsley Witten Group for six years, assisting with several projects, which include preparation of development as-built pans, proposed development plans, Chapter 40B subdivision plans, condominium plans, plans to satisfy American Land Title Association (ALTA) specifications and plans to satisfy Massachusetts Land Court specifications.

LICENSES AND REGISTRATIONS

Professional Land Surveyor, Commonwealth of Massachusetts
Registration #37560

Massachusetts Department of Environmental Protection
Approved Soil Evaluator

Massachusetts Department of Environmental Protection
Approved Title V Septic Inspector

REPRESENTATIVE PROJECTS

- Dorchester, Massachusetts: Conducted research, field work, office computations and plan preparation to meet ALTA requirements for the site of the former William Lloyd Garrison public school.
- Mattapan, Massachusetts: Conducted research, field work, office computations and plan preparation to meet ALTA requirements for the site of the former Lowell Mason public school.
- Mashpee, Massachusetts: "Main Street Village"; Provided supervision during many phases of development of a mixed use, affordable development that included single-family homes, multi-family units and retail stores, including the preparation of condominium unit plans prepared in conformance with the Massachusetts Land Court requirements.
- Mashpee, Massachusetts: "The Kenmark Village Condominium"; Provided supervision and review of research, field work and plan preparation for a commercial condominium unit plan.
- Sandwich, Massachusetts: "Rock Hill Subdivision", Eastward Companies; Conducted research, field work, office computations, plan preparation and plan presentation to the Sandwich Planning Board for a proposed 14-lot, single-family residential cluster subdivision.
- Harwich, Massachusetts: "Bassett Woods Subdivision", Eastward Companies; Performed various tasks towards development of a 7-lot residential subdivision including road and lot staking, soil evaluations, percolation tests and preparation of individual lot site and

MICHAEL S. LADUE
Professional Land Surveyor

REPRESENTATIVE PROJECTS (Continued)

septic plans.

- Brewster, Massachusetts: "Tamer Lane", Eastward Companies; Performed various tasks towards development of a 7-lot residential subdivision including road and lot staking, soil evaluations, percolation tests and preparation of individual lot site and septic plans.

- Brewster, Massachusetts: "Long Pond Landing", Eastward Companies; Performed various tasks towards development of a 7-lot open space residential subdivision including road and lot staking, soil evaluations, percolation tests and preparation of individual lot site and septic plans.

PROFESSIONAL EXPERIENCE

Horsley Witten Group, Sandwich, Massachusetts, April, 2007 to Present.
Principal Land Surveyor

Ladue Land Surveying, Brewster, Massachusetts, 1998 to Present.
Proprietor, Professional Land Surveyor, Approved Soil Evaluator and Approved Title V System Inspector

Town of Harwich, Harwich, Massachusetts, 1989 to 2000.
Engineering Aide, 1989 to 1993, Town Land Surveyor, 1993 to 2000

Robert H. Ladue, R.L.S., Plattsburgh, New York, 1984 to 1989.
Survey Party Chief

JUSTIN LAMOUREUX, P.E.
Civil Engineer

Academic Background

Bachelor of Civil and Environmental Engineering, 2000
University of Massachusetts, Amherst

Professional Affiliation

Professional Engineer
Massachusetts (#47377)

DEP Soil Evaluator
Massachusetts

INTRODUCTION

Mr. Lamoureux is a Project Manager with the Engineering Group. He has over six years of engineering design experience in water supply, wastewater and water resources including site layout, grading, building layout, building design, stormwater modeling, detailed piping layout, hydraulic modeling, specifications, and surveying. He is proficient in the use of AutoCAD, Land Development, PondPack, HydroCAD, HECRAS, WaterCAD, and FlowMaster.

SITE DEVELOPMENT PROJECTS

- Asher's Path Residential Development, Mashpee, Massachusetts: Mr. Lamoureux managed the permitting, construction planning, and construction supervision of a 56-Unit elderly housing project. The project incorporated low impact development design measures with advance nitrogen removal wastewater and stormwater systems.

- The Driftway Bicycle and Pedestrian Trail, Scituate, Massachusetts: Mr. Lamoureux managed the design, permitting, and construction supervision of an 8-foot wide bicycle and pedestrian trail along a high traffic roadway within the center of the Town of Scituate. The path was approximately 1-mile long and included various utility relocations and resource area protection measures.

- Kenmark Commercial Building, Mashpee, Massachusetts: Mr. Lamoureux managed the permitting, construction planning, and construction supervision of a 6,000 square-foot commercial building in the Mashpee Center Overlay District. Low impact development (LID) site design methods were implemented and the layout allows future expansion within the property.

- Brackett Landing Mixed-Use Development, Eastham, Massachusetts: Mr. Lamoureux managed the permitting and construction of a 40 unit residential development, which included mid-level housing and two commercial use buildings. Water and wastewater disposal management were provided on-site and the development utilized the latest in smart growth principals and stormwater technology.

- Main Street Village Subdivision, Mashpee, Massachusetts: Mr. Lamoureux was lead designer for a ten-acre smart-growth subdivision in Mashpee, Massachusetts, which incorporated mid-level housing and small scale commercial usage into a community development. The project utilized the latest in both stormwater and on-site wastewater management while providing protection to all surrounding natural resources.

JUSTIN LAMOUREUX, P.E.
Civil Engineer

STORMWATER MANAGEMENT PROJECTS

- Route 120/26 I-684 Stormwater Management, Westchester County, New York: Mr. Lamoureux was involved in developing a stormwater management concept for the runoff produced from an area tributary to a 3,650-meter section of the existing Route I-684 roadway and a 3,000-meter section of the reconfigured Route 120 roadway, which borders the Kensico Reservoir (New York City's drinking water supply). The design incorporates the use of numerous types of Stormwater Best Management Practices (BMPs), including perimeter sand filters, bioretention gardens, dry swales, infiltration systems, and constructed wetland ponds equipped with spill containment and oil/grit separators.

- BMP Operation, Maintenance, and Performance Evaluation Manual, Boston, Massachusetts: Mr. Lamoureux assisted the Massachusetts Office of Coastal Zone Management (CZM) with the development of a Best Management Practice Manual, which was developed through a series of site inspections and data gathering. A comprehensive review and assessment of the operation and maintenance performance of 25 stormwater remediation projects was completed. The project included an assessment methodology developed by HW and CZM, a summary of inspection results and findings, and a set of recommendations for improved siting, design, and maintenance of stormwater BMPs

- Barnstable Municipal Airport Parking Lot, Barnstable, Massachusetts: Mr. Lamoureux was involved in developing a stormwater management concept for the proposed 9-acre (1,139 spaces) Intermodal Parking Lot and 4,900-foot long section of the relocated access road. A treatment train approach involving grass channels, bioretention systems and infiltration basins was developed due to the site being within the Town of Barnstable's groundwater protection zone, and the Lewis Bay Marine Recharge Area. Pretreatment, spill control, recharge to groundwater, water quality control/treatment, and water quantity control were all satisfied by the design.

- Attleborough Department of Public Works Yard, Attleborough, Massachusetts: Mr. Lamoureux was the lead engineer in evaluating site rehabilitation measures for this property, including the development of a Stormwater Management Master Plan (SMMP), which required the evaluation of various structural stormwater management practices, as well as nonstructural stormwater management practices (alternative practices, location of material storage areas, and operation and maintenance). Massachusetts DEP awarded a 319 grant, to the City. Final design plans and specifications of the original SMMP were completed and Mr. Lamoureux was directly involved in overseeing the construction of the project.

JUSTIN LAMOUREUX, P.E.
Civil Engineer

WATER & WASTEWATER MANAGEMENT PROJECTS

- Pinehills Private Treatment Facility, Phase II Expansion, Plymouth, Massachusetts: Mr. Lamoureux was involved in the site layout and design of the expansion of the existing wastewater treatment facility, which at build-out will service an approximate 3,000 homes and various commercial developments. The design includes two additional sequencing batch reactors, a grit removal system and building, a office building, two sludge holding tanks, two equalization tanks, and two pump chambers. Mr. Lamoureux is directly involved with the supervision of the construction project.

- Pinehills Water Company, Water Storage Tank and High Service Pump Station, Plymouth, Massachusetts: Mr. Lamoureux was involved in the site layout and design of a 2-million gallon water storage tanks and its associated booster pump station as well as the construction supervision of this project. The water storage tank and booster pump station will serve the Pinehills community at Plymouth. The design includes vertical turbine pumps, altitude control valve, chlorine feed system, backup generator, remote video monitoring and supervisory control and data acquisition system.

- Pinehills Water Company, Water Supply Distribution System, Plymouth, Massachusetts: Mr. Lamoureux is currently involved in the simulation of the Pinehills water supply distribution system, which includes the Pinehills Pumping Station, a 2-million gallon in-ground storage tank, a booster pumping station for the high service demand area and over 20-miles of watermain. When completed, the system will supply drinking water to approximately 3,000 homes, three golf courses, and various commercial developments.

- Cranberry Village Pumping Station, Carver, Massachusetts: Mr. Lamoureux assisted in the detailed design and construction supervision of a potable water pump station serving the Cranberry Village in Carver. The design incorporated two submersible pumps with soft starters, two 4,500-gallon hydro-pneumatic tanks, potassium hydroxide feed system, chlorine feed system, backup generator, and a precast pump station.

- High Service Study and System Design, Sharon, Massachusetts: Mr. Lamoureux assisted in the design of a booster pumping station and hydropillar storage tank, with the objective of alleviating the town's emergency storage and low-pressure problems in the distribution system. The town's entire water supply system was simulated with WaterCAD software.

JUSTIN LAMOUREUX, P.E.
Civil Engineer

PROFESSIONAL EXPERIENCE

Horsley Witten Group, February 2001 to Present
Civil Engineer
Assists the Engineering Group with projects associated with both municipal and private clients. Tasks include design, construction inspection, and miscellaneous field activities.

Guerriere & Halnon, Inc., Engineering and Land Surveying,
Summer 2000
Performed and analyzed topographical and property surveys using the latest surveying equipment. Was involved in the surveying of construction projects.

Lamoureux Siding, Inc., 1994 to 2000
Supervisor
Installed siding on residential and commercial buildings. Responsible for preparing cost estimates, meeting with clients, supervising work crew, and keeping projects on schedule.

8/07

JOE HENDERSON, P.E.
Civil Engineer

Academic Background

Bachelor of Science, 2000
Civil Engineering
University of Massachusetts, Dartmouth

Professional Affiliation and Registration

DEP Soil Evaluator
Massachusetts

Certified Title 5 System Inspector, Massachusetts

Professional Engineer
Massachusetts (#46668)

INTRODUCTION

Joe Henderson performs engineering support in site development, wastewater treatment, water, and stormwater projects. He is proficient in collecting and evaluating data from test pits, preparation of design plans using AutoCAD Land Development and Civil 3D version 2007, evaluating and designing stormwater management facilities using HYDROCAD version 7.0, designing on-site wastewater disposal systems with and without advanced wastewater treatment systems, cost estimating, working with clients, construction oversight and performing site survey work.

REPRESENTATIVE PROJECTS

Large Wastewater Treatment Design Projects (flow >2000 gpd):

- West Barnstable Communities Site A, West Barnstable, Massachusetts: Design and permitting of Advantex advanced wastewater treatment system, capable of treating to 19 mg/L total nitrogen, for a 7,300 gpd residential 40B development.

- Ashers Path, Mashpee, Massachusetts: Design, permitting and construction oversite of a FAST advanced wastewater treatment system, capable of treating to 10 mg/L total nitrogen, for an 8,400 gpd elderly housing development.

- Pinehills, Plymouth, Massachusetts: Assisted in designing 150,000 gallon per day upgrade to the existing wastewater treatment plant serving the Pinehills luxury home and golf course development. Also assisted in water system design using WaterCAD modeling software.

- Pinehills, Plymouth, Massachusetts: Conducted hydraulic loading tests to confirm the capacity of sites selected for a 500,000-fpd of treated effluent from the wastewater treatment serving the Pinehills luxury home and golf course development.

- Canal Bluffs Development, Bourne, Massachusetts: Performed soils investigation, and Designed layout of Bioclere wastewater treatment plant and disposal beds treating approximately 30,000 gallons per day wastewater flow for a 117 unit housing project. Project also includes the preparation and submission of a Groundwater Discharge Permit application with the Department of Environmental Protection.

- Main Street Village Development, Mashpee, Massachusetts: Designed stormwater infiltration system, site grading and utilities for ten residential lots and one commercial lot. Also designed and

performed construction over-site of alternative wastewater treatment system and disposal beds to treat 5,000 gallons per day wastewater flow.

- Mill Pond Estates, Osterville Massachusetts:
  Performed soils investigation, and designed layout of Bioclere wastewater treatment plant and disposal field treating approximately 4,100 gallons per day wastewater flow for an 11 unit housing project.

- Dana's Field Development, Sandwich, Massachusetts:
  Performed initial site grading, stormwater management system design, utilities and 10,000 gallons per day wastewater treatment system design for proposed community including residential, agricultural and commercial uses. This project is currently on hold pending an appeal.

- Henry T. Wing School, Sandwich, Massachusetts:
  Designed, permitted and performed construction oversite of 12,000 gallon per day wastewater treatment system that included recirculating sand filter and disposal beds. The existing NPDES surface water discharge was converted to a system permitted under the Variance for Schools provision of Title 5.

- Algonquin Heights Apartment Complex, Plymouth, Massachusetts:
  Performed evaluation of existing wastewater system by locating and evaluating existing leaching pits and septic tanks at 3 buildings. Also designed low pressure sewer system to transport wastewater to the municipal sewer system located 1,300 feet from the 16 building complex.

Small Wastewater Treatment Design Projects (flow < 2000 gpd):

- Septic System Design, West Barnstable, Massachusetts: Performed soils investigation, design and permitting of a septic system upgrade at a single family home with a proposed building addition. The existing system will be upgraded from 4 bedrooms to 6 bedrooms. Two local code variances will also be obtained.

- Septic System Design, West Barnstable, Massachusetts: Performed site survey, soils investigation, design and permitting for single family home Title 5 septic system upgrade. The existing system will be upgraded from 3 bedrooms to 6 bedrooms. A local code variance will also be obtained.

- West Barnstable Communities Site B, West Barnstable, Massachusetts: Design and permitting of Bioclere advanced wastewater treatment system for a 1,800 gpd elderly housing building.

JOE HENDERSON, P.E.
Civil Engineer

- Septic System Design, Edgartown, Massachusetts: Performed site survey, soils investigation, design and permitting for single family home Title 5 septic system design on Martha's Vineyard.

- Septic System Design, Wareham, Massachusetts: Performed soils investigation, design, permitting and construction oversite for Title 5 septic system serving public facility located on the A.D. Makepeace property.

- Septic System Design, Plymouth, Massachusetts: Performed soils investigation, design, permitting and construction oversite for Title 5 septic system serving the Old Sandwich Golf Club private golf course located at the Pinehills.

- 100 Cove Lane, Barnstable, Massachusetts:
  Performed a soil evaluation and percolation test to support the design of an on-site wastewater treatment system for a single-family home under very tight site constraints due to site configuration and extensive wetlands.

Stormwater and Site Design Projects:

- Town of Marion and the Marion Affordable Housing Trust, Marion, Massachusetts:
  Develop conceptual site design plans with site layout and grading for the redevelopment of an elderly housing complex. Included is a capacity analysis of an existing wastewater pumping station.

- Falmouth Affordable Housing Committee, Falmouth, Massachusetts:
  Perform soils investigation, percolation testing and Develop conceptual site design plans with site layout, grading, wastewater treatment and utility layout for 14 unit housing development.

- MacDougall's Cape Cod Marine Service, Falmouth, Massachusetts:
  Designed stormwater infiltration system, site grading, utilities, and layout of buildings and roads. Also performed soil pit tests and supervise soil borings.

- Barnstable Municipal Airport, Hyannis, Massachusetts: Design Vortechnics stormwater treatment retrofit for existing drainage system at the airport to be submitted as part of DRI submission to the Cape Cod Commission. Runoff treated prior to entering two large ponds located on the airports 623 acre property.

- Samoset Street Outfall Assessment and Conceptual Engineering Project, Plymouth, Massachusetts: Delineated drainage areas, performed soil test pits and soil evaluations, and site and design stormwater Best Management Practices for the Town of Plymouth.

JOE HENDERSON, P.E.
Civil Engineer

Survey Projects:

Site Survey, Barnstable, Massachusetts: Assisted in existing conditions survey and construction layout for 1,700 foot forcemain for the design of a groundwater remediation system.

- Site Survey and Wetland Location, Scituate, Rhode Island: Assisted in topographic survey, property line survey and wetland flag location for a 30 acre parcel of land. Work included operation of a GPT-3000 series total station and identifying and locating property boundaries.

- Site Survey, Mashpee, Massachusetts: Assisted in topographic and property line survey for a 4.2 acre parcel of land. Work included operation of a GPT-3000 series total station and identifying and locating property boundaries.

Design Review Projects:

- Nantucket Planning Board, Nantucket, Massachusetts: Evaluated and reviewed water, wastewater, stormwater, and site layout to ensure conformance with town and state regulations.

- Kingston Planning Board, Kingston, Massachusetts: Performed construction inspection for new residential developments that include site grading, paving and installation of stormwater, electric, water and gas facilities.

- Marshfield Board of Health, Marshfield, Massachusetts: Performed construction inspection for 9,900 gpd Bioclere treatment system to serve a new residential development. Scope of work includes inspection of pressure dosed soil absorption system, witness of clear water test and leakage testing.

PROFESSIONAL EXPERIENCE

Horsley Witten Group June 2000 to present
Civil Engineer
Provides engineering services, including centralized and decentralized wastewater treatment systems, stormwater management systems, construction inspection, peer review and site survey.

Town of Barnstable Engineering Department, 1999 to 2000
Engineering Intern
Inspected the construction and resurfacing of roadways, performed survey work and helped create a database of town roads and sewers. Activities included regular interaction with the public.

Land Surveying

Horsley Witten Group, Inc. (HW) feels that having surveying as an in-house service complements other engineering and wetlands services and creates a more streamlined process in completing project planning, design, and construction. Often times design engineers and other integral personnel are involved with field survey, creating a familiarity of the site conditions that result in a better, more efficient design.

HW has the ability to complete surveys for many types of projects, including: topographical existing conditions surveys for site development; wetlands delineations; permitting; planning, and feasibility studies; property-line surveys for subdivisions, easement plans, and lot stakings; construction surveys for layout and As-built drawings; Land Court surveys for lot creation and condominium registration and ALTA surveys.

In the field, HW uses total stations and state of the art data collectors which capture field information quickly and accurately. This system allows for a quick turn around between field survey and finished plan. HW is also experience in various GPS applications. RTK GPS provides the accuracy of a total station and is effectively used on larger project areas (> 40 acres).

HW also uses a submeter hand held GPS unit for gathering preliminary site information, and at times flagging wetlands. When projects are in the planning stage and accuracy is not as critical these handheld units can be a useful tool in determining feasibility.

Projects recently completed by HW that involve surveying include:

- Private Client, Village at Mashpee, MA. HW completed a topographical and ALTA survey for the 24-acre vacant parcel located in Mashpee, MA. All work was completed in compliance with the 2005 Minimum Standard Detail Requirements for American Land Title Association/ American Congress on Surveying and Mapping (ALTA/ACSM) Land Title Surveys.
- EA Fish/Peabody Properties, Affordable Housing, Mashpee, MA. HW completed the following surveying tasks: topographical; construction on-call; property line; and ALTA predevelopment and final construction and as-built. HW completed all surveying for this affordable living complex of 56 units for residents over 55 located on a 7-acre parcel.
- Private Client, Residential Development, Scituate, RI. HW completed a topographical, property line, and wetlands survey for the development of this 40-acre parcel.
- EA Fish/Peabody Properties, Housing Redevelopment, Framingham, MA. HW completed a topographical, property line and ALTA survey in preparation for redevelopment of this urban property.
- EA Fish/Peabody Properties, Various Properties, Boston, MA. HW completed topographical, property line and ALTA surveys in preparation for purchase of a number of urban parcels on an on-call basis for our client.
- McShane Construction, Mixed Use Development, Mashpee, MA. HW completed topographical, property line, construction stakeout, and as-built surveys for this mixed use commercial and residential development.
- McShane Construction, Commercial Development, Mashpee, MA. HW completed topographical, property line, construction stakeout, and as-built surveys for this commercial development.
- Housing Assistance Corporation, Various Properties, Cape Cod, MA. HW completed topographical, property line, and/or wetland surveys at a number of properties ranging from 7 acres to 45 acres slated for development as affordable housing.
- Cape Cod Community College, Hyannis, MA. HW completed topographical survey for the installation of a wind turbine at this college.
- Barnstable Municipal Airport, Hyannis, MA. HW completed a number of topographical and location surveys at this commercial airport.
- Provincetown Municipal Airport, Provincetown, MA. HW completed a number of topographical, wetland, property line, and various other surveys as part of the redevelopment of this airport.

HW Contact: Dan MacKenzie, P.L.S.

- Smart Growth
- Integrated Water Management
- Wastewater Management
- Stormwater Management
- Civil & Environmental Engineering
- Wetlands Assessment
- Hydrogeology & Water Supply
- Coastal Management
- Site Assessment & Remediation
- Land Use Planning
- Graphic Services
- Education & Outreach

Horsley Witten Group
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www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563

Project Description

Billington Sea Stormwater Management Improvements Project

Plymouth, Massachusetts

HW is proposing a series of constructed stormwater wetlands to capture and treat the sediments.

The Town of Plymouth retained Horsley Witten Group (HW) to provide surveying, wetland delineation, and engineering services for the design of stormwater management improvements for Billington Sea, located at Black Cat Road and Billington Sea Road. As part of funding from the Massachusetts 319 Non-Point Source Grant Program, the Town identified these roads for corrective drainage design in order to reduce pollutants entering Billington Sea. This site currently collects a large amount of sedimentation at the low point in Black Cat Road generated from an unpaved portion of Billington Sea Road.

Minimal public land, proximity to perennial streams, high groundwater, and extensive wetland resource areas limit the locations and types of stormwater Best Management Practices (BMPs) suitable for the site. In collaboration with the Town and private land owners, HW is proposing a series of constructed stormwater wetlands to capture and treat the sediments and other stormwater pollutants prior to discharging to Billington Sea. In addition, HW is proposing to pave Billington Sea Road and improve conveyance in both roads by installing bituminous berm and inlets to eliminate erosion and gullying.

Under this contract, HW is performing the following tasks:

- Existing conditions site survey and base plan preparation;
- Subsurface soil investigations;
- Delineation of wetland and other jurisdictional resource areas;
- Preparation of construction design plans, profiles and details of road/drainage improvements for the project location;
- Preparation of erosion and sediment controls for facility construction;
- Development of a long-term operation and maintenance plan; and
- Supporting computations, sampling protocols, and final reports for 319 Grant Program management.

Contact: Mr. David Gould
Environmental Manager, DEM
Town of Plymouth
11 Lincoln Street
Plymouth, MA 02360
(508) 747-1620 x134

HW Contact: Rich Claytor, P.E.

- Smart Growth
- Integrated Water Management
- Wastewater Management
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Project Description

Proposed Wind Turbine Survey at Cape Cod Community College

Town of Barnstable

"Property line became a critical item since the turbines need to be setback from private property and public roadways at distance proportionate to the overall height of the proposed turbine."

R. W. Beck an engineering consulting firm in collaboration with Global Energy Concepts were given the task to place a wind turbine on the campus of Cape Cod Community College in Hyannis, Massachusetts. Town of Barnstable GIS mapping was used for initial planning and determining the most suitable location on the 50 acre lot. But final placement and design required a more detailed on the ground survey of the 14 acres surrounding the chosen site. HW performed a topographic survey and a property line survey to Beck's specifications. Beck needed mapping that included 2 foot contours, all buildings and improvements, parking, edges of pavement and observable utilities including water, sewer, gas, electric and drainage. Beck also required the survey be tied to standard datum: Horizontal datum NAD 1927 Massachusetts State Plane Coordinate System and a vertical datum of NGVD 1929.

Property line became a critical item since the turbines need to be setback from private property and public roadways at distance proportionate to the overall height of the proposed turbine. HW has submitted the existing conditions plan and will continue to assist with layout and placement of proposed structures.

- Smart Growth
- Integrated Water Management
- Wastewater Management
- Stormwater Management
- Civil & Environmental Engineering
- Wetlands Assessment
- Hydrogeology & Water Supply
- Coastal Management
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HW Contact:
Dan MacKenzie

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Horsley Witten Group

Project Description

Affordable Housing Development

Asher's Path, Mashpee, Massachusetts

Asher's Path is an affordable over-55 housing development that will consist of 56 one-bedroom housing units and associated common space. EA Fish was the selected developer after a competitive bid process by the Mashpee Housing Authority. EA Fish Associates retained the Horsley Witten Group (HW) to complete the civil/site design aspects of the project. HW completed a preliminary rare and endangered species survey, a complete existing conditions land survey which conformed to ALTA requirements, a Phase I Environmental Site Assessment, as well as all aspects of the site design.

"HW completed the road and parking configurations, using a stormwater management system incorporating state-of-the-art strategies based on natural systems, or so-called 'low impact development' techniques."

HW also provided all planning, site design, engineering and project management services, including: project schematic designs and layout, engineering design for all utilities, drainage, stormwater management, wastewater management, erosion and sediment control, landscaping, and site grading. HW provided all permitting services and support services at public hearings before the Mashpee Site Plan Review Committee, the Planning Board, and Board of Health. HW also provided a review of construction bids as well as construction management services.

HW completed the road and parking configurations, using a stormwater management system incorporating state-of-the-art strategies based on natural systems, or so-called "low impact development" techniques. These techniques include open channel grass swales and bioretention facilities that provide increased levels of pollutant removal. The project included a state-of-the-art wastewater management system using proprietary de-nitrifying technology. HW sized the system in accordance with the State Environmental Code Title 5 wastewater requirements as well as the Town of Mashpee design requirements. HW will also provide construction administration services.

- Civil & Environmental Engineering
- Wetlands Management
- Coastal Management
- Hydrogeology & Water Supply
- Stormwater Management
- Wastewater Management
- Site Assessment & Remediation
- Land Use Planning
- Education & Outreach

Contact:
Mr. Edward Fish
Ms. Betsy Collins
781-380-1575

HW Contact:
Joe Longo

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6062

SCHEDULE FOR COMPLETION
Horsley Witten Group, Inc.
Engineering Services for Sudbury Town Center, Sudbury, Massachusetts
Planning and Development Office

Task		Apr-08	May-08	Jun-08	Jul-08	Aug-08
Notice to Proceed Assumed to be on or before April 27, 2008						
1	Research	X	X			
2	Field survey		X X			
3	Property line Calculations		X			
4	Drafting Plan for Review		X	X X		
5	Town Review of Draft Plan			O O		
6	Drafting Final Plan				X	
7	Review and Update of Existing Conditions				X	
8	Plan Delivery				X	
Estimated Project Completion Date (July 15, 2008)						

X = Horsley Witten Group activity

O = Town of Sudbury

Horsley Witten Group
Sudbury Center Survey

Task Description	Personnel	$ Rate/hr	Hours	Subtotal $	Task subtotal $
RESEARCH					
TOWN HALL	Prof. Land Surveyor	$80.00	8	$640.00	
REGISTRY	Prof. Land Surveyor	$80.00	8	$640.00	
INTERNET	Prof. Land Surveyor	$80.00	8	$640.00	
				$1,920.00	$1,920.00
FIELD SURVEY-LOCATION					
TOPOGRAPHIC	Survey crew	$120.00	9	$1,080.00	
PROPERTY LINE	Survey crew	$120.00	9	$1,080.00	
WETLANDS	Survey crew	$120.00	0	$0.00	
IMPROVEMENTS	Survey crew	$120.00	9	$1,080.00	
UTILITIES	Survey crew	$120.00	9	$1,080.00	
MANHOLES & INVERTS	Engineer II	$60.00	0	$0.00	
	Survey crew	$120.00	9	$1,080.00	
				$5,400.00	$5,400.00
SURVEYOR -OFFICE					
PLOTTING	Prof. Land Surveyor	$80.00	10	$800.00	
PROPERTY LINE CALCS	Prof. Land Surveyor	$80.00	10	$800.00	
DRAFTING FORMAT	Engineer II	$70.00	30	$2,100.00	
				$3,700.00	$3,700.00
ENGINEER					
REPORT	Professional Engineer	$160.00	6.25	$1,000.00	$1,000
DIRECT COSTS					
MILEAGE	8 trips	150 round trip	1200 p/mile	0.5 p/mile	$600
GPS RENTAL					$350
					$12,970.00